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ORIGINAL ARTICLES.

THE CLIMATIC TREATMENT OF DISEASE; WESTERN NORTH CAROLINA AS A HEALTH RESORT.[1]

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Modern science invests old topics with new interest. The fundamental factors of sanitation are now so well understood that the question of climate and its influence upon health and disease may be discussed with the assurance of dealing somewhat, at least, with objective factors, instead of theory and the results of experience alone. Every student of modern medicine finds a new inspiration from the great progress already made by the indefatigable labors of a considerable number of trained workers in all the leading countries. The one object of research has been to ascertain the causes of communicable diseases.

Few will now be found to question the real profit arising from this most difficult problem of scientific research, and that, at least, a clew has been obtained leading to a knowledge of one of the most profound of nature's mysterious workings. There are many who accept it as the prophecy of a revelation to come, which shall elevate medicine from the domain of art and place it within the realm of the more exact sciences; a knowledge of fundamental factors upon which to erect anew the Temple of Æsculapius. If a contagium vivum plays the rôle in the entire group of zymotic diseases, the study of organic decomposition is not alone a question of chemical interest, but irresistibly leads to conclusions of a biological character; and the scientist finds himself absorbed in watching life processes;—a struggle for the survival of organisms with their environment, a conflict ending often in the destruction of the higher complex forms of animal life by a foe, so insignificant, so utterly beyond ordinary comprehension, that it seems verily a battle with the powers and principalities of the air.

The so-called "germ theory of disease" has passed from the realm of theory into that of demonstration as fact, and based upon our present knowledge, confessedly fragmentary and imperfect, yet sufficiently exact from which to make deductions, sanitation has become in a large measure a science. From this standpoint, climatology is invested with a new interest and value, as seen especially in the contributions of the last few years. A surgically clean wound means an aseptic wound. The aphorism of Hippocrates, "pure air, pure water, pure soil," signifies now an air, water and soil free from infectious elements of disease, and this must be defined as the most important factor pertaining to a health resort, sought under the name of climate. This subject, which is far too large for the present occasion, must be epitomized in a general way, as the individual wisely adapted to his surroundings.

Life carries with it, as an inherent property, a vital, resisting power by which the individual is able to adapt himself to surroundings and overcome deleterious influences. These phenomena we call the "laws of life," beyond the limits of which life itself ceases. Thus heat, water, food, oxygen, etc., must be furnished within fixed limits. Departures from the ideal standard which we call health lessen the vital, resisting power of organs, as well as of individuals, and pave the way for the introduction of pathological factors. Nature has provided man with an armor efficient to withstand and repel the invisible foes with which he is ordinarily surrounded. An unbroken skin is a coat of mail invulnerable to his surgical foes. The steady police surveillance of the cilia of the epithelium which lines our respiratory passages is ever ready to seize and expel the intruder, be it bacillary, or any other form of atmospheric contamination. When the defenders of the castle are disabled, then it especially behooves us to take into watchful consideration the strength and character of ourselves, as well as of our enemies.

The chemical and mechanical laws of life have, hitherto, almost entirely engaged the attention of investigators in the study of the circumfusa of the invalid. For a number of years committees from the American and British Medical Associations have been engaged in securing data for the comparison of the invasion of acute diseases with meteorological changes. Although these latter are largely x-factors in the problem, they have a much wider significance than usually supposed, since they make possible conditions not only devitalizing to the individual, but favoring in many instances the growth and development of infectious germs. The tides and changes of the great atmospheric ocean, in which we are submerged, are of the utmost significance. Its weight, as measured by the barometer, indicates the pressure which our bodies sustain. The moisture in suspension not only increases the weight, but modifies its influence upon the individual, and this is measured

[1] Read before the American Academy of Medicine, New York, October 29, 1885.

by the hygrometer. The changes of atmospheric temperature, as recorded by the thermometer, are of well recognized importance. The atmosphere also varies in its composition, of which, from our present standpoint of consideration, oxygen and ozone may be accepted as the most significant, since these agents materially lessen the growth and development of all the microscopic forms of plant life. From the observations of a number of our most competent physiologists, it is probable that the amount of oxygen absorbed in health does not greatly vary whether the individual is at the sea-level, or at high altitudes. If this is correct, the accepted belief of increased oxygenation of the blood from breathing an air rich in oxygen, as at the sea level, is not true.

The effect upon the individual of an ozonized atmosphere is generally conceded to be beneficial, yet, unfortunately, less is known upon this subject than is desired; its antiseptic properties are well recognized, and its influence upon the purity of the atmosphere, if not upon the individual, is undoubted. Ozone owes its great influence to its powerful oxidizing qualities. The compounds of ammonia, phosphorus and sulphur are acted upon with great rapidity, and the odors resulting from animal decomposition are removed almost instantly. It is probably destructive to all the minute vegetable organisms, when in active development, but its effect in destroying the vitality of their spores has not yet been ascertained. This has its direct bearing upon the question of climate, since it has been pretty well determined that all the varieties of pathogenic microbes not only do not thrive, but fail to live, except within a narrow range of conditions. Pasteur has based his problem of protection from disease by the inoculation of attenuated virus of repeated cultures, upon the belief that these morbific bacteria have lost their specific effects in the presence of free oxygen—that is, these growths are anærobic. The experiments of Ogston and Cheyne do not, however, confirm this supposition. In a series of cultures of the vaccine coccus, conducted with great care, the cocci bred true and cultivated readily, but the vaccinations which I made from the cultures were entirely without effect. A few degrees in temperature will often be sufficient to retard or destroy the development of the bacterial reproduction.

Based upon the belief that an aseptic atmosphere is of the first importance in the selection of a climate for the benefit of sufferers from a certain class of diseases, examinations of the atmosphere have been carefully made to demonstrate its purity. Miguel and Freudenreich found that microphytes were rare at 800 metres, and absolutely wanting at 2,000 metres above the sea level. For physical reasons, high altitudes have been believed to be beneficial in early phthisis, and, influenced by the later demonstrations of a bacillary cause, this aseptic state of the atmosphere is theoretically accepted as promising good results, and sanitary stations for mountain-air treatment of consumptives have been established at several selected points in the Alps, where the comforts of home life are furnished to invalids. Of these health resorts, Davos and St. Moritz are the most popular. St. Moritz is 6,000 feet and Davos is over 5,000 feet above the sea level, and the latter has become noted for winter treatment, although the average temperature from November to March is only 23° F. The number of visitors at Davos last winter was over 1,000, and careful provision is made for home comfort. The patients are urged to be active out of doors within the limit of fatigue. Each year adds to the number of invalids resorting to these mountain sanitaria, and the statistics show good results. It should, however, be borne in mind that the cases sent to these resorts are those selected in the incipient stages of disease, and this is to be taken into the account in the deductions that the recoveries average one-fourth; also the time elapsing after the treatment has been too short to determine with accuracy the results. This pertains in criticism to the statistics of other similar localities, but it is by no means an easy task to secure satisfactory data, and such a problem can never be subjected to a mathematical analysis.

A recent medical visitor writes as follows: "I saw the well known "apostle" of Davos, Dr. Spengler, and his son-in-law, Dr. Peters, whose cordial reception I will not fail to mention here. They gave me much valuable information about Davos and its value as a health resort. They seem to aim chiefly at strengthening the general system, and the heart in particular. I do not think they make systematic use of the milk-cure or of the douche; but the methodical walks up hill form part of the curative system. Consumptive patients are benefited by their stay here if the heart be in good functional order, and if they have still a certain amount of strength. Erethic, or very weak patients, sometimes lose their sleep as soon as they are here; and, unless they regain it after the first few days of acclimatization, they do better to leave the place altogether. Davos seems to be favorable also in the case of torpid, scrofulous patients who want a bracing and exciting atmosphere, for non-irritable anæmics, debilitated and convalescent subjects. The fear of tuberculous infection in these large sanitaria may keep away a number of such patients until special hotels have been opened for non-tuberculous persons. I spoke with our professional brethren on the occurrence of hæmoptysis; and was told that it was by no means more frequent here than in the plain. In a pamphlet, 'Die Landschaft Davos,' I find the following instructive data given by Dr. Spengler himself: 'Out of 323 patients, 178 never had hæmoptysis, either at home or here (in Davos); 126 had hæmoptysis at home, and none here; sixteen had it both there and here; three first had it here.' These figures speak very plainly for themselves."

In America we are indebted to the indefatigable labors of Dr. Charles Denison, of Colorado, far more than to any other person, for his masterly study of the Rocky Mountain regions as health resorts.

Granting that consumption is dependent upon the development of a bacillus within the lung, what may we legitimately expect from climate for its destruction or expulsion? Its propagation, so far as we now know, is dependent upon a proper soil, which means the furnishing of suitable nutriment in the form of albuminoids, a continuous temperature, and a proper

amount of moisture. These supplied, the bacilli reproduce abundantly externally to the individual, and that they do not in any manner lose their pathogenic qualities is shown by their ready reproduction and development, following inoculation, causing the death of healthy animals.

Do climatic changes modify these factors? Much has been claimed for, and written upon the advantages of a dry climate in consumption. There are other reasons why this may give benefit, but I suppose no one will contend that the fluids in the tissues of the lungs are materially lessened thereby, or that, while life continues, these can by any manner of means be so diminished as to prevent bacillary development. The heat-point for the bacillary growth must be maintained so long as the individual exists, for its reduction to a point to interfere with its development must be incompatible with the conditions possible for the maintenance of the life of the individual. Given, the depreciation of the vitality of the tissues locally, and that the albuminoids requisite to furnish food for the unwelcome tenants continue, and we safely infer, from what we now know, that an aseptic atmosphere, however, dry or rarefied, cannot alone furnish the factors of cure.

The rôle of bacterial reproduction varies greatly in certain diseases. Thus, in scarlet fever, measles, small-pox, once having run its course, the bacterial development is at an end, and only in the most exceptional conditions can be reproduced in the same individual. In a measure this is true of typhoid, typhus, and yellow fever, and also of diphtheria and perhaps other diseases. Remittent or malarial fever is an exception, and yet, after a time, the individual either takes on an increased resisting power to the disease, or the conditions necessary for its development are changed and so-called acclimitization follows. However, the residents of a malarious country never entirely escape its influence. That it is a new infection, rather than the development of the original seed, appears probable, since ordinarily a residence in a country free from malaria soon causes the disease to disappear. While thus much may be determined from experience, and the sufferers from this disease promised exemption by change of climate, sufficient is not yet known of the rôle of the bacillus malariæ from which to deduce more than the most general conclusions. Enough is known of the bacillus tuberculosis to show that it is found in all countries, making its greatest inroads in thickly settled communities and is most prevalent in cold, damp localities. This latter state may be considered favorable since, thereby, catarrhal conditions of the respiratory passages are induced, and thus a soil favorable for its development is produced. For similar reasons the general vitality, or resisting power of the individual is reduced. That the person thus subject to catarrhal inflammations should be greatly benefited by breathing an aseptic air is easily conceived, since such an individual residing in a city can scarcely escape the breathing of an infectious atmosphere.

Every pathologist knows that a considerably greater percentage of cures in consumption is effected than is generally believed. It is not rare to find localized, cicatricial and calcareous degeneration in the apices of lungs, otherwise healthy, which may be traced to disease incurred even in early life. If caused by bacilli, why did these cases recover? The answer must be, that the conditions for the proper development of the microbe did not pertain, that in some way the vital, resisting power of the tissues was superior to the invasion of the disease, that cells were proliferated, as a protective wall, so to speak, against the invasion of the microbe, which did not furnish the albuminous food necessary for its development. Thus shut in, the disease is necessarily limited and bacterial growth ceases.

Sée, in his recent treatise on "the Bacillary Phthisis," discusses at considerable length, the question of microphytic life, especially that of the bacillus tuberculosis in high altitudes; and considers such a climate of prophylactic character. Recent very interesting experiments, conducted in the pure air of the Adirondack region, show that the development of the bacillus tuberculosis following inoculation and infection of animals does not in any wise differ from the laboratory experiments carried on in the large cities.

Dr. Harold Williams, of Boston, in a carefully prepared paper read before the Massachusetts Medical Society during the present year, reviews certain phases of the question of the adaptability of climate to individuals, and in summing up says: "It seems to me that we must admit, in the present state of our knowledge, the meteorological differences of climate have been proved to be of little importance in the treatment of phthisis; and, furthermore, that clinical evidence would support this conclusion, for the burden of proof lies with those advocates who plead in favor of special climates, and such proof it seems to me is yet to be forthcoming."

This is more than I am willing to admit, since we should look for aid to the infected individual from climatic change, not in the breathing of an "anti-bacillary atmosphere," but in the placing of the patient in surroundings suitable, if possible, to strengthen his weakened, vital, resisting powers, and reinforce his tissue development, so that it may be superior to the attack of the would-be destroyer, and although we do not know all the conditions requisite for counteracting the growth of morbiferous bacilli, we are assured that healthy tissues and blood imperfectly furnish the required pabulum. Were it only necessary to breath an anti-bacillary atmosphere, science could solve the probiem and give to the sick-chamber an antiseptic air fatal to bacterial growth. Many have builded hopes upon such remedial agents and, perhaps, in certain measure correctly; but, given a "pneumatic cabinet" and antiseptic inhalations, we should not expect to affect a diseased gland, a caseous nodule; and only in a certain limited degree, a cavity even, since the air inspired goes almost wholly into the less diseased and healthy portions.

When our present knowledge of infectious diseases is thus reviewed, are we to ignore, as some recent writers have done, the entire question of benefit to be obtained from climatic change? On the contrary, it appears, therefrom, that we have sufficient data by

which to add, emphasize and encourage climatic investigations and confirm previous experience, even if the theories, under which it was sought, do not prove true. Equability and dryness of the air are certainly important, well recognised factors in the alleviation of the respiratory tract, and this alone is sufficient to make these conditions of value, in the selection of a residence for such invalids. Atmospheric moisture, in cloud or vapor, is detrimental by lessening the sunlight, and the clear skies of any land are justly prized. This is sometimes called the diathermacy of the atmosphere, and this is increased by the rarefaction of the air. Nearly every one has observed the intensified effect of the sun's rays at high altitudes.

Clinical observations teach that on the invalid able to endure it, active-out-of-doors exercise, in elevated localities, has an especial invigorating effect upon the respiratory function and apparatus; the circulation is improved, thereby increasing the oxydation of the tissues, as well as producing a better cellular nutrition and elimination of the effete material. The lowering of the atmospheric pressure also tends to diminish the circulation of the deeper tissues, which in certain conditions of the organs is of great importance—as for example, in renal, hepatic, or cerebral congestions—while, on the other hand, the blood-flow to the surfaces is greatly augmented, an important factor in conditions of defective, or perverted cutaneous nutrition. The effect of this is shown in increased appetite and improved digestion, until the imperfectly prepared food, too often forced by necessity, to supply the demand, is taken with a relish never known at home, and digested without knowledge of organs or processes.

With a labor only known to those who have worked in such direction, Dr. Denison has utilized the mass of statistics gathered by the Signal Service Department, and placed before the profession his seasonal maps of the United States. These are worthy the careful study of every physician, and teach many facts of the greatest importance. Under date of June, 1885, he writes in regard to Colorado: "In my practice of twelve years in Colorado, it has been very seldom that I have known of the origination of phthisis here, and with the carefully kept records of nearly twelve hundred cases of asthma, phthisis, chronic pneumonia, etc., I do not remember to have written a certificate of death for one uncomplicated case of phthisis originating in Colorado. Of course there are such cases; I have one under my care at the present time. As civilization progresses here, it will not be strange if the disease becomes much more frequently met with in thickly settled districts, made up as they are of a considerable scattering of regenerated invalids. . . . The weight of evidence is so decidedly in favor of elevation as an important factor in the climate for the consumptive, that it will not answer for any one who has not personally investigated the Rocky Mountain regions, or similar elevated resorts, to say that nothing has been proved for elevation. Everything has been proved; since all the most desirable attributes, dryness, coolness, sunshine, stimulation of increased atmospheric electricity, sandy soil, perfect drainage, and last, but not least, *purity of atmosphere*, are found and increased with elevation above the sea level."

Dr. H. Weber, in his excellent *résumé* of the subject of climatic treatment of phthisis given in the the Croonian lectures, published in the *British Medical Journal* during the present year, emphasizes the advantage gained by the invalid not only from elevation, but also by the cold, dry air, and makes the distinction that in the sunshine the coldness pertains rather to the atmosphere than to the individual. Speaking of his personal experience in the high Alps in November, at the elevation of 10,000 feet, without an overcoat, he says: "As long as I remained in the sunshine I never felt warmer in August or September in the same localities; but in the shade an overcoat would have been just a comfort, though I did not feel cold, in spite of a temperature of only 20° to 25° F., the air being perfectly calm. A black bulb thermometer *in vacuo*, showed in the sun between 88° and 92° F., while an ordinary thermometer registered only between 31° and 32° F." He sums up the advantages attained in mountain health resorts to be as follows: "1st. The atmospheric purity or aseptic nature, the comparative absence of floating matter. 2d. Dryness of the air and soil, comparative absence of mist. 3d. The coolness of the air-temperature and the great warmth of the sun-temperature. 4th. The rarefaction and low pressure of the air. 5th. The intensity of the light. 6th. The stillness of the air in winter. 7th. A large amount of ozone. The effects on the invalid suited to such climates are, increase of appetite, improvement of sanguification and general nutrition, strengthening of the heart and circulation, raising of muscular and nervous energy and of activity of the skin."

Observations have been made in some of the South American high altitude stations, as at Janja, of more than 10,000 feet above the sea. The range of temperature during an entire year was between 50° and 60° F., with the sky always clear and sunny, and an atmosphere pure and bracing, which invites to out-of-doors exercise and enjoyment. In an atmosphere as cold as the winter in the Alps or the Rocky mountains, it is essential to select localities where protection from wind is attained, since the motion of an atmosphere thus cold abstracts heat rapidly. In broad stretches of equable cold, the winds are reduced to a minimum and the absence of moisture greatly increases the hours of sunshine.

The chief objection to the Rocky Mountain health resorts lies in the distance from the centres of population. The White Mountain region affords a very considerable elevation, but, judged in the light of the above experience, too little to secure much good from the rarefaction of the air, since Bethlehem is the higher location of the villages, and this is only 1,800 feet above the sea level.

The Adirondacks are of less elevation, but possess the advantage over the White Mountains in being sparsely inhabited, an almost unbroken forest, an elevated plateau furnishing an equable, cool summer and a decidedly cold winter climate. Through the influence of Dr. Loomis, of New York, a sanitarium

has been established for patients to remain the entire year, and good results have been attained; but it is difficult of access, and offers very little advantage from rarefaction of the atmosphere.

The mountains of the Alleghany range have been known to some extent as affording interesting and health-giving resorts for summer recreation, and in the southern ranges furnishing summer homes for the residents of Southern States. The entire range is free of malaria, and Ashville, in Western North Carolina, has grown to a village of about five thousand inhabitants, chiefly as a summer resort. The Alleghanies divide, in the northern part of North Carolina, into the Blue Ridge and the Smokies, the latter the boundary line between that State and Tennessee. The triangle thus formed, with South Carolina and Georgia on the south, is filled with cross ranges of mountains and comprises a territory of about fifty thousand square miles. The entire section is elevated in the bed of the streams, or valleys, to about two thousand feet above the sea, and presents a most irregular surface; a sea of mountain peaks, ranging from three thousand to six thousand feet in height. Within an area of fifty miles there are twenty peaks over six thousand feet high; nine-tenths of the entire district is an unbroken, primeval forest of the largest growth, chiefly of deciduous trees. It is the oldest geological formation on the continent, of granitic character, and gives the most unmistakable evidence of the corroding tooth of time. Not a lake or a swamp is to be found in the entire region, a fact perhaps without a parallel for an area of equal extent in the world. Feldspar is the predominating factor in the granite, and, owing to its easy decomposition, the rocks have worn more rapidly, giving an excellent soil for tree growth and the purest of water, as seen in an endless series of pearly, musical rivulets.

With a sparse population, such soil and water, there cannot be otherwise than a pure atmosphere. Owing to the difficulties of making railroads in such a mountainous country, until quite recently, the larger portion of this region has been more inaccessible than Colorado, and no part of the United States, east of the Mississippi, equally large, is probably to-day so little known, or possessed of equal natural advantages, so entirely undeveloped.

The possible advantages of a winter residence in this section has, until recently, been untried. Within the last two or three years I have sent a considerable number of invalids to Ashville and other localities, for the most part with excellent results. Owing to my own favorable impressions, I personally surveyed this triangle during the past summer, making several hundred miles on horseback and in carriage. I am indebted to a large number of resident physicians, whose uniform courtesy I am glad to acknowledge, for many of the facts upon which my deductions are based.

Ashville was the central point of observation. Its popularity is likely to prove its ruin as a health resort; too large for a country village, with its purity of surroundings, too small to secure the advantages from sewerage and an uncontaminated water-supply. Its large hotels are badly located in the centre of the business portion of the town, and its beauty of situation is its chief recommendation. Twenty-three hundred feet above the sea, it is splendidly situated on rising ground, with a distant amphitheatre of mountains. As a winter resort it possesses the advantages derived from its southern location, giving a mild climate, not unlike the South of France. From observations now made for a number of years, the mean average of temperature at Ashville is: Spring, 52.3°, summer, 71.3°, autumn, 55.3°, winter, 37.2°; year, 55.3°.

Average rain-fall, 40.02 inches; during a period of eight years the thermometer but twice rose above 88°, and only three times fell below 3°. Ashville has offered, hitherto, the essential advantage of being of greater altitude than any other Southern health-resort of easy reach by rail, with a dry, pure, and invigorating air; in winter a remarkable freedom from rain and cloud, with warm sunshine; in summer never oppressive heat, and cool nights. Rain makes of the clayey loam a tenaceous mud, which often seriously interferes with out-of-doors exercise.

Dr. H. P. Gatchel, of Ashville, who has for years made a careful study of the climate, writes: "The climate of Ashville is no Eden climate. It partakes more or less of the variableness that pertains to the most of our territory. It has some severe winter days and some blustering March weather; but it is on the whole the best climate we have. If it lacks the uniform mildness of a portion of California, it does not, on the other hand, beget that excessive sensitiveness which is engendered in California. It develops a more robust constitution. It seems to afford a favorable medium between the enervating influence of the warm or uniformly mild regions and the overpowering cold of high Northern latitudes. The snow seldom remains many days at a time, even on the high mountains, and its stay in the valleys can generally be measured by hours. The climate of Western North Carolina would be still more desirable if the rain of winter were less than it is. But though this is considerable as compared with the dry interior beyond the ninety-fifth meridian, yet compared with Cincinnati, Louisville, Nashville, and Knoxville, it is moderate. Indeed, the universal testimony of all competent observers establishes the existence of a dry, invigorating atmosphere; the neighboring mountains serving to intercept much of the moisture, and to cause its deposition on the summits and outer slopes. The average rainfall in inches of the different seasons for a period of eleven years is shown to be as follows:

Spring	10.1 inches.
Summer	13.5 "
Autumn	7.1 "
Winter	9.5 "
Total	40.2 inches."

Below, on the French Broad River, are the Warm Springs, noted even by the Indians for their curative powers. Westward, at an elevation of twenty-seven hundred feet, is Waynesville, an enterprising town, but here the valley is rather narrow, especially up the Richland Creek, where are located the White Sulphur Springs, justly popular as a summer resort,

since the scenery is surpassingly lovely. Beyond here the broken ranges extend westward for a hundred miles in picturesque beauty of forest and mountain, but without a single hotel where an invalid can be even comfortable.

If tuberculosis is dependent upon the development of a bacillus, then the orthodox belief in the heredity of consumption is subject to revision and modification. In evidence upon this question, I quote from a recent letter written by Dr. Oliver Hicks, of Rutherfordton, N. C.:

"I have made observations in regard to pulmonary diseases generally, and hereditary tubercular phthisis especially, to which I wish to call your attention, and which I know will influence you in selecting a place of refuge for your phthisical patients. My observations and the opinions I have formed are based upon a large practice for twenty years. I can show you sons and daughters of ancestors who came to this country and died from tubercular phthisis. Many of them are far past the meridian of life, and are in good health, with fair prospects of attaining to ripe old age. The grandchildren of these ancestors are in all respects healthy, and are entirely without indication of tubercular or strumous cachexia."

The Tuckaseege and Little Tenneesee rivers water beautiful, wide, elevated valleys, with out-stretching expanse of surrounding forest. Their headwaters are in the mountains, which form the dividing chains between South Carolina and Georgia. A considerable village, called the Highlands, has been advertised extensively as a health resort. It is situated on a broad plateau, covered with oak growth, at an elevation of about four thousand feet, but it is of very difficult access for invalids, being fifty miles from the Western North Carolina railroad and about thirty from rail in South Carolina. The roads are never good, and at times well-nigh impassable. The rainfall here is excessive, being over seventy inches yearly average for the two years during which observations have been made. The changes of temperature are sudden, and during much of the summer, clouds and rain prevail. The cooler elevations cause condensation of rain from the moisture-ladened winds blowing from over the heated lower lands stretching away to the East and South.

Westward is the Nantahala Valley, which is less a valley than a plateau, between the ranges about three thousand feet in elevation. Twenty miles by fifty long, it lies in picturesque loveliness, an almost unbroken forest. Beneath the great arches of wide-stretching birches, maples, and oaks, runs the beautiful river, giving name to the valley, making rippling, laughing music in its merriest mood, flecked with sunshine and shadow, between its banks festooned with thick hedge of kalmia and rhododendron; the wildest, most secluded spot east of the Rocky Mountains. The rail will soon reach this valley, and the time will come when the attractions of this locality will draw thousands to enjoy and profit by a sojourn amid these mountains.

Farther to the north are the splendid ranges, culminating in the Black, the Roan, the Yellow and Grandfather mountains. The growths upon the upper heights are decidedly Alpine in character and afford a greater variety in plant-life than any other localities in the United States. On top of the Roan, General John B. Wilder has erected a hotel, with accommodations for from four to five hundred guests. Next year the visitor is promised the ascent by a steam-cable-road in connection with the railroad from Johnston City in East Tennessee. The Roan is 6390 feet above the sea and is the highest inhabited spot east of the Rocky Mountains. The temperature has been found to be exceedingly equable and the electrical condition of the atmosphere is claimed to offer certain advantages. This large hotel has been erected in the belief of great benefit to be derived from a considerable long residence here, based upon the experience of several years during which period a small hotel became very popular.

An interesting condensed weekly record is the following from the report of James E. Burnett, U. S. Survey Officer, for the three months ending Oct. 15, 1885, station top of Roan Mountain, N. C. Observations were taken at 6 A.M., noon, and 6 P.M. daily. It is to be regretted that the amount of rain-fall and clear weather was not recorded:

Time.	Bar.	Ther. D. B.	Ther. W. B.
1st week — Highest	24.363	68	65
" Lowest	24.225	56	42
" Average	24.285	61.2	56.8
2d week — Highest	24.303	67	65.5
" Lowest	24.176	57	56
" Average	24.253	62.7	61.4
3d week — Highest	24.203	66	62
" Lowest	23.964	48	47.5
" Average	24.110	59.5	57.3
4th week — Highest	24.292	65.5	64.5
" Lowest	24.173	51.5	50.5
" Average	24.228	59.6	58.1
5th week — Highest	24.254	66.5	65
" Lowest	24.036	50	49
" Average	24.138	58.3	56.9
6th week — Highest	24.291	75	65
" Lowest	24.136	53	51.5
" Average	24.202	59.5	56.8
7th week — Highest	24.266	70	65
" Lowest	24.024	41	39
" Average	24.137	56.8	58.4
8th week — Highest	24.236		61,5
" Lowest	24.070		44
" Average	24.134		52.4
9th week — Highest	24.200	64	61
" Lowest	24.016	51	50
" Average	24.131	56.6	55.2
10th week — Highest	24.274	61	62
" Lowest	24.026	44	42
" Average	24.163	56.7	51
11th week — Highest	25.324	64	62
" Lowest	23.984	48	44
" Average	24.191	49.5	51.8
12th week — Highest	24.272	59	58
" Lowest	23.816	35	35
" Average	24.069	47	45

Prof. Muttrich, of Berlin, has reached the following conclusion from his forest meteorological researches: "That the forest exercises a positive influence on the temperature of the air; that the daily variations of temperature are lessened by the forest, and in summer more than in winter; that the influence of the leafy forest in summer is greater than that of the pine forest, while in winter the tempering influence of the pine forest preponderates over that of the defoliated forest."

So far as I have been able to learn, no studies of a general sanitary character have been made upon this elevated region of the southern Alleghanies.

The first writer on the climate of this region was John Rawson, Surveyor-General of North Carolina.

His history was printed in 1714 and reprinted in 1860 at Raleigh, N. C. He states: "The climate is very healthful, our summer is not so hot as in other places to the eastward in the same latitude. . . . Our sky is generally serene and clear, and the air very thin in comparison with many parts of Europe, where consumption and catarrh reign among the inhabitants. The winter has several fits of sharp weather, especially when the wind is northwest, which always clears the sky, though never so thick before. However, such weather is very agreeable to European bodies, and makes them healthy."

The first scientist who probably visited this region was William Bartram, the botanist, who explored these ranges in the service of the distinguished Dr. Fothergill, of London, in 1772, and published the ever interesting report of his travels, in a now rare book, in London in 1778. He never tires of repeating his delight in the beauties of the landscape, the diversity and magnificence of the vegetation, and declares that the Indians, both male and female, are among the finest specimens of physical development he has ever seen of any nationality.

F. A. Michaux, M.D., also an enthusiastic botanist, gives an interesting account of his travels and collections, which was translated and published in London in 1805. He says: "These mountains are getting inhabited very rapidly. The salubrity of the air, the goodness of the water, etc., are the causes which attract new settlers hither."

Prof. Asa Gray, of Cambridge, reports at considerable length an extensive botanizing tour made in 1841 in the mountains of North Carolina. He reviews the labors of the previous explorers, and adds much interesting information of a general, as well as of a special character. This is found in the *American Journal of Science* for April, 1842. The late Prof. C. W. Kerr, State Geologist of North Carolina for many years, wrote: "By reference to the Sanitary Department of the Census Report of 1870, it will be seen that one of the two or three most healthy localities in the United States is found in the western part of North Carolina, in the Blue Ridge region. Indeed, it would be difficult to find a more salubrious climate in the world than the whole mountain section." Of the recent writers, no one has contributed so much of general information and value as Ziegler and Grosscup, in their work entitled "In the Heart of the Alleghanies."

In the Smithsonian Reports for 1856, the late Silas McDowell first called attention to and discussed the thermal or "no frost" zone. There are certain considerable localities where frost is unknown, and the seasons, in their vegetation, are quite unlike the adjacent slopes. Often in the early spring it is manifest as a green band across the side of a mountain before elsewhere apparent. The explanation is the peculiar conformation of the slopes, which modifies the atmospheric currents. Sections of this zone are found upon almost every spur of the Blue Ridge south of the Catawba River. The season is as long as in South Carolina, while the summer heat is not higher than that of New York. No reports from invalids residing in these localities have come to notice, as far as known, but the absence of frost at these elevations adds a very important factor to the rarefaction of the atmosphere, now sought as essential in certain conditions of pulmonary disease of the entire region.

The water is pure and abundant, springs bubble up from every mountain-side and clear, crystalline streams run musically through every valley. Medicinal waters, sulphur and iron springs, are not rare. One great benefit to invalids of all classes lies in the purity of the air, which the extraordinary forest-growth does much to render equable in temperature and moisture. Dust is unknown. The electrical phenomenon of the summer storms is exceptional; a highly ozonized atmosphere results therefrom. Notwithstanding the utter disregard of laws of health by the inhabitants, they are a long-lived race of people. One intelligent man, past 80, but looking scarcely 60, who delighted in statistics, gave me these, which he had gathered in Macon County: With a population of about ten thousand, 136 individuals still living aggregated in age 10,667 years. Of the number 26 men, 2,215 years, average 85+ years; 21 women, 1,823 years, average 86+ years; one woman living now in her 107th year.

The absence of mosquitoes, gnats and black flies will speak volumes in favor of these mountain forests to those who have sought recreation in the wilds of our border lands in any direction. The lack of civilizing comforts is the present drawback, and the invalid who ventures a residence in these remote mountain recesses must provide for himself nearly everything approaching a luxury. The lover of nature of either sex will find plenty to occupy and fill the hours with delightful study. It is, however, no place for one seriously ill, and the chronic grumbler will never want for occasion to exercise his spleen. The absence of good roads and bridges makes locomotion difficult. The saddle offers the best of exercise and the surest means of travel, but the railroads approaching from every direction give promise of a new era. The mineral wealth, forest growth and productive soil are in evidence of material prosperity to come. The pure air, water and climate hold out a hopeful helpfulness to invalids from every land. The wise legislator, seeking far-reaching results, would do well to consider the advisability of securing, under State control, a large reservation of the higher ranges as a park. Its cost, at present, would be merely nominal. Like the peaks and glaciers of Switzerland, its indirect returns of monetary gain would be more sure than bonded interest, and its sanitary advantages would be of a value incalculable to millions yet unborn.

116 Boylston St., Boston, December, 1885.

MEDICAL PROGRESS.

OBSTETRICS AND GYNECOLOGY.

LEOPOLD'S TWO ADDITIONAL CÆSAREAN SECTIONS; UTERINE SUTURE WITHOUT RESECTION OF THE MUSCULAR TISSUE.—Altogether, Leopold has performed the Cæsarean five times after the modern

method, for which we are indebted to Sänger. In his first three cases he followed Sänger's method exactly (stripping off the serosa, resection of a strip of the muscular tissue on both sides, suture, and dropping of the uterus). In the two cases reported in this paper, he did not resect the muscular tissue, for the reason that he has concluded it is an unnecessary detail. Of his five cases, only one died, number four, and she of sepsis, which had set in before the operation. Five living children were obtained. The conclusions he has reached from these operations are given in this paper as follows: 1. The patient to be operated upon is to be examined *per vaginam* as little as possible. The external and internal organs of generation are to be carefully disinfected with sublimate (1–2000)or carbolic (three per cent.). 2. Operate early—at the end of the first stage of labor. 3. Have trusted assistants, thoroughly familiar with the steps of the operation. 4. The uterine incision should extend downwards only to the reflection of the peritoneum, and is to be enlarged towards the fundus. 5. After removal of the child, and before touching the placenta, draw the uterus out of the abdominal incision, and 6. Control hæmorrhage by compression of the cervix by elastic ligature or bands. 7. Resort to stripping of the serous and resection of the muscular coats only when the serous borders do not readily glide over the muscular borders. 8. The uterine incision is to be first sutured with silver wire, not including the decidua. The inner borders of the muscular walls will come together better if, before drawing on the sutures, the uterus be compressed from side to side. When the sutures are drawn together, the borders of the wound readily approximate. Do not twist the sutures too tightly. The snperficial sutures are best of fine silk. These superficial sutures should pierce the serous borders twice at the middle of the incision, once toward the end. 9. The uterus sutured, the elastic ligature is to be removed, and the abdominal incision treated as after an ordinary laparotomy.

The lesson taught Leopold by his fatal case was: Where the patient is feverish, the membranes a long while ruptured, a foul discharge from the genitals, then there is probably inflammation extending to the serous covering of the uterus, and disinfection by the vagina or in the abdominal cavity will be, likely enough, of no avail to stop sepsis. In such a case, the operation, as outlined above, had better not be undertaken, but, in the present state of our knowledge, the Porro method resorted to.—*Archiv. für Gynak.*, xxvi, 3—*Amer. Journal of Obstetrics*, November, 1885.

STRYCHNINE IN POST-PARTUM HÆMORRHAGE.—MR. JOSEPH THOMPSON, in a note on this subject, says: Dr. Walker calls attention to the influence exerted by strychnine over *post-partum* hæmorrhage, and I can corroborate his observation. My father first informed me of its use, and I have been in the habit of giving this remedy (during the last eighteen or twenty years) in all cases where flooding has been expected or has occurred in previous labors, with most satisfactory results. I have no notes of cases, but have in my memory several instances where there was a previous history of flooding after labor, but where, when strychnine had been given beforehand, no hæmorrhage came on. Strychnine has, no doubt, a marked influence in preventing *post-partum* hæmorrhage. I usually give five-minim doses of the liquor stychniæ in tincture of orange-peel three times daily for a month or six weeks before the expected time, and I cannot recall any case of flooding where it had been given in this way.—*British Medical Journal*, Dec. 5, 1885.

MEDICINE.

RELATION OF ASTHMA TO DISEASES OF THE SKIN.—DR. L. DUNCAN BULKLEY read a paper on this subject at the recent meeting of the British Medical Association, in which he draws the following conclusions:

1. Asthma has been observed in patients with certain diseases of the skin, in such a manner as to indicate some occasional relationship between the two.

2. Asthma does not occur, probably, in more than 1 per cent. of patients with diseases of the skin, and those mainly of the class known as exudative or inflammatory disorders.

3. This occurrence of asthma in skin-patients cannot be looked upon as a coincidence, nor is the skin-disease to be regarded as a cause of the asthma; but both the skin and bronchial difficulty depend upon the same internal cause, which may be nervous in origin, or may result from some altered condition of the blood.

4. While the theory of the dependence of asthma on a state of spasm of the muscular element of the bronchial tubes has very strong evidence in its favor, it is still possible that the paroxysm of asthma may be occasioned by sudden and evanescent swelling of the mucous membrane of the bronchioles, partaking more or less of the characters of the wheals of urticaria, occurring both on the mucous membrane of the mouth and on the skin.—*British Medical Journal*, Nov. 2, 1885.

SUGAR IN THE BLOOD IN CARCINOMA.—GABRIEL MÁTRAI (*Pester Med. Chir. Pr.*, 36, 1885), after an examination of the blood of eleven carcinomatous patients and eleven other persons, states that Freund's theory is incorrect. Sugar is found only after the cancerous cachexia has developed, and is due to the cachexia, not to the carcinoma.—*St. Petersb. med. Wochenschr.*, No. 45, 1885.

SURGERY.

LIGATION OF THE COMMON ILIAC (ARTERY AND VEIN) FOR PELVIC ENCHONDROMA.—PROFESSOR E. VON BERGMANN reports the case of a girl, 11 years old, who had a pediculated enchondroma of the pelvis, arising from the left sacro-iliac articulation, for which he ligated the common iliac artery and vein. The operation, which was extra-peritoneal, was completely successful.—*Deutsche med. Wochenschr.*, 42 and 43, 1885.—*St. Petersburger med. Wochenschr.*, No. 45, 1885.

THE
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PUBLISHED WEEKLY.

THE EDITOR OF THIS JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, DECEMBER 26, 1885.

THE DIAGNOSTIC SIGNIFICANCE OF ANGINA PECTORIS WHEN ASSOCIATED WITH SUDDEN DEATH.

Within the last few months the country has been startled by the sudden death of at least six public men: Emery A. Storrs, the well-known lawyer and wit of Chicago, Josh. Billings, General McClellan, Mr. Hendricks, H. B. Claflin and Mr. Vanderbilt. So far as we have been able to learn, an autopsy was not held in the case of any of them. Hence the cause of death is not exactly known, although this can be inferred either from the previous history or the mode of death.

In the case of Mr. Vanderbilt the *exitus lethalis* was extremely sudden and, so far as reported, was not heralded by any prodromata. He was stricken down in the midst of apparently vigorous health, while engaged in earnest conversation with a railroad rival. In all probability he was under the influence of strong emotion. Death was attributed to apoplexy, but, notwithstanding the folly of attempting a diagnosis at this distance and with such meagre facts at command, we are yet led by two considerations to doubt the correctness of that decision. These are, the great infrequency of almost instantaneous death from apoplexy, on the one hand, and on the other, the frequency, in men past 60, of rupture, or of sudden arrest of the heart in diastole, in consequence of strong emotion. Presumptive evidence, therefore, would indicate that Vanderbilt died of sudden cardiac failure. Similarly, the abrupt termination of H. B. Claflin's life, immediately after the perpetration of a jest, seems to point to a systole of the heart as the cause of death. In these two instances there was not, so far as we know, any evidence of preëxisting heart disease. In the cases, on the contrary, of the first four distinguished men named above, there was a distinct history of angina pectoris or of symptoms allied to it.

Although the newspaper accounts of Mr. Storrs's last moments did not mention his having suffered pain in the chest, they yet spoke of a distress in the breast for which the attending physician had prescribed, and of which he complained during the night. It is not improbable, in view of his subsequent sudden death, that this was either an anginose attack, or that form which Heberden characterized as "*angina sine dolore*." According to the accounts of Josh. Billings's last moments, he was sitting in the door of his hotel, chatting cheerfully, when he suddenly complained of agonizing pain in the region of his heart. A physician was hastily summoned, but before he arrived the well-known humorist had expired. General McClellan and Mr. Hendricks were both reported to have endured an attack of neuralgia of the heart for hours, and to have expressed thankfulness for the cessation of the agony, although its subsidence, as the next few moments showed, but betokened the inability of the wearied heart to struggle on any longer.

In view of these facts is it justifiable to attach diagnostic importance to the occurrence of angina pectoris immediately prior to death? In order to answer this query, the cause of this "suffocative breast-pang," must be ascertained if possible. Heberden, who, it is well known, gave the name angina pectoris to this pain in the chest, considered it due to a spasm of the heart. Contemporaneous and subsequent English authors adopted his view. The post-mortem discovery, however, that the hearts of those having died in an attack of angina were in a state of diastole, instead of spastic contraction, proved the incorrectness of Heberden's conclusions. Parry was the first to recognize degenerative changes in the coronary arteries of those hearts which had manifested angina, and although his observations were abundantly confirmed, there arose early in this century a strong opposition to the dependence of this symptom upon organic diseases of the heart. In consequence of his celebrated case, in which a tumor of the cardiac plexus was discovered *post mortem*, Romberg was led to consider this breast-pain as a hyperæsthesia of the cardiac plexus. Lancereaux supported this view by two cases in which he found degeneration of the cardiac nerves, together, it should be said, with atheroma of the coronary arteries. For a time, therefore, the theory prevailed, at least on the Continent of Europe, that the pain of angina pectoris was of nervous origin and might be quite independent of organic

changes in the heart walls. Indeed, no less an authority than Eulenburg, in his article upon this subject in the fourteenth volume of Ziemssen's "Cyclopædia of Medicine," advocates this view, and, like Landois, would divide angina into several different categories.

Nevertheless, there has gradually been manifested a tendency to return to the view that true angina pectoris is dependent upon degenerative changes in the cardiac muscle. These again are the result of defective nutrition, either in consequence of atheroma of the coronary vessels or of valvular lesions. These changes in the muscle may be either acute, with acute circumscribed softening, or chronic, as chronic fibroid degeneration with thinning of the wall affected. Leyden, of Berlin, has recently advocated this view, and English writers, Balfour, Bramwell, Fothergill and others coincide with Leyden. In consequence of these changes in the walls of the ventricles, chiefly the left, the heart becomes weakened and either ruptures or becomes paralyzed by some sudden increase in internal pressure which would have once been borne without injury. If now, these facts be kept in mind, the great significance of angina pectoris in individuals past middle life becomes apparent and a correct ante-mortem diagnosis of the cause of sudden death possible.

THE CLINICAL ASPECT OF GLYCOSURIA.

Such is the title of an interesting and comprehensive paper read at the late annual meeting of the British Medical Association, by DR. PAVY, whose name is sufficient guarantee of the value of the communication. His paper, which was the introduction to a discussion on glycosuria, was followed by one on "Acute Febrile Glycosuria," by Dr. Markham Skerritt, and a paper on "Glycosuria," by Dr. W. R. Thomas, all of which are to be found in the *British Medical Journal*, of December 5.

The first striking feature in Dr. Pavy's paper is a table showing the ages in 1,360 cases of diabetes at which the disease set in, which shows that 30.73 per cent., almost one-third of the cases, occurred between 50 and 60 years of age, 24.92 between 40 and 50; giving 55.65 per cent between 40 and 60. "From this period there is a sharp and increasing fall in both directions." This table represents the cases from private practice, and Dr. Pavy thinks that a table of hospital cases would show that the greater number consists of patients from 15 or 18 up to 35 or 40 years of age. Of the cases tabulated 960 were males and females; a disproportion in favor of males that is rather contrary to the experience of some practitioners. Eight of the cases occurred under 10 years; thirty-four between 70 and 80, and one over 80. As regards the family history of glycosuria, Dr. Pavy says there can be no doubt that the disease runs in families; in support of which he gives some very striking examples. This, however, is only in accord with what seems to be the general experience of accurate observers.

As is very well known, the appearance of glycosuria may be sudden, or very gradual. In this connection Dr. Pavy refers to the fact that the disease may exist for some time without exciting suspicion, and be discovered by the white stains left on the black trousers of patients; the stains being due to the drying of the urine which has splashed on the clothing. It is especially in old people that the disease comes on insidiously. In regard to the sometimes sudden onset, Dr. Pavy mentions the case of a lady who suddenly became very thirsty in the course of an evening, and was, on examination, at once recognized as suffering from diabetes. Is it not probable, however, that many of the cases of sudden onset of diabetes are those in which diabetes insipidus has already existed unnoticed? The exact relation of diabetes insipidus to diabetes mellitus is not definitely defined. They may exist together, and their coexistence may be proved. Or the usual order may be reversed, and diabetes mellitus be followed by diabetes insipidus.

As it is to the nervous system that we must look for an explanation of glycosuria, it is all-important that the nervous symptoms arising in the course of the affection should be carefully noted. Dr. Pavy is satisfied that "certain symptoms of disordered nerve-action, especially spinal, are very apt to accompany diabetes." He has seen so many cases of ataxia associated with this disease, that he has for some time past been led to consider that there is some connection between the two. They may come on together, or one may precede the other. Again, "pains and manifestations of perverted sensibility are noticed, without ataxia." Exophthalmic goitre is sometimes seen in connection with diabetes, but Dr. Pavy is not prepared to insist on a relationship between the two, as with diabetes and ataxia. He does not believe in the theory involved in the term "acetonæmia," but is "inclined to consider that the coma depends rather on the exhaustion of certain nerve-centres than on the action of any direct poison on the blood." As regards the fatty condition of the blood frequently observed in cases of diabetes, and which has been suggested as a possible explanation of the coma, through the production of fatty emboli, he maintains that it is a purely physiological state. "Fat exists

normally in the blood after the ingestion of a meal containing much fatty matter."

In the discussion, MR. LATHAM called attention to the close relation which, he believed, existed between diabetes, gout and rheumatism. He thinks that there are two distinct forms of diabetes: 1. One dependent upon modified innervation of the liver, the glucose absorbed from the alimentary canal passing unchanged through the portal system into the general circulation; gout being the analogue of this disorder. The glycocine from the glycocholic acid of the bile is reabsorbed from the alimentary canal, instead of undergoing normal transformation, gives rise to uric acid, "which, acting on an enfeebled portion of the medulla oblongata, gives rise to gout." 2. Another form of diabetes has its origin in the changes in the muscular system, and has its analogue in rheumatism. The constituent of muscular tissue, which, liberated in excess, gives rise to glycocine and uric acid, and sometimes causes rheumatism, has its oxidation partially interfered with, is hydrated into glycollic acid, which is converted into methyl-aldehyde when oxidized. Hyperpyrexia from rapid oxidation of lactic acid may result, or lactic acid may be oxidized into aldehyde and thence into acetic acid (from which acetone may be produced) if oxidation be interfered with. He regards the distinction between the two forms as of importance in regard to treatment. In the second class of cases salicylic acid, gr. xl–lxx a day, is of great service, the diet being only slightly restricted. In the cases of the first class salicylic acid, he says, has no effect. The urine from the second class often contains some substance which dissolves cuprous oxide, and interferes with Fehling's test—a very important point.

CIRCULAR CONCERNING THE ORGANIZATION OF THE NINTH INTERNATIONAL MEDICAL CONGRESS.

The Secretary-General, by order of the Executive Committee, has issued an official circular announcing the Preliminary Organization of the Congress. It contains the list of General Officers who will be nominated for election by the Congress; the members of the Executive Committee; the local Committee of Reception at Washington, and the *Rules* adopted by the Committee on Organization, in the three official languages, English, French and German. It is being circulated extensively both in Europe and America.

This preliminary circular closes with the following paragraphs: "A list of the Presidents, Vice-Presidents, Secretaries, and Members of Council for each Section, will be given in the full programme, to be published at a later period in the progress of the work.

"The Executive Committee cordially invites members of the medical profession and men eminent in the sciences collateral to medicine, in all countries, to participate in the International Medical Congress of 1887.

"Communications and questions relating to the business of the Congress should be addressed to Dr. N. S. Davis, Secretary-General, 65 Randolph street, Chicago, Illinois."

We are informed that the organization of the Sections is already well advanced, and the work of arranging the full programme for the Congress will be prosecuted by the Executive Committee as actively as possible.

AMERICAN PUBLIC HEALTH ASSOCIATION.

The recent meeting of this important National Organization in Washington was well attended, and many important papers and reports were presented, as our readers will learn from the unusually full report of the proceedings which is being published in our columns. The opinion seemed to prevail very generally among those present, that the General Government ought to establish some kind of National Health Organization, but in regard to details as to the form the organization should take, there appeared to be as great a diversity of views as ever. Some advocate the reinvigoration of the National Board of Health; some, the establishment of a new Board to be composed of members selected from the several State Boards of Health; others, a Bureau of Health headed by a Commissioner as an attachment to either the Interior, the State or the Treasury Departments of the General Government; while a few at least, advocate a distinct Department of Health on the same basis as the Departments of the Interior, the Treasury, etc., and the official head of which would be a Cabinet Officer. The latter would not only constitute the most efficient method, but it would be more in accord with the extent and importance of the interests to be committed to the care of such a department.

CLOSE OF VOLUME V.

It is hardly necessary to remind our readers that the present number completes the fifth volume of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, and contains a full index and title-page. As the first number in January will commence Vol. VI, the present is an excellent time for new subscribers to send their addresses and the five dollars for THE JOURNAL one year. A few of our *subscribers* are in arrears, and should send us the amount due without delay.

We are informed by the Treasurer that a considerable number of members of the Association have thus far failed to send him their membership dues for the current year. All such should forward the amount due to the Treasurer, Richard J. Dunglison, M.D., Lock Box 1274, Philadelphia, without further delay.

CHOLERA AND SMALL-POX.—The first of these diseases still prevails to some extent in Spain and in one Province, Palermo, in Italy; while the latter continues to destroy a number of lives in Montreal and its environs each week.

SOCIETY PROCEEDINGS.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirteenth Annual Meeting, held at Washington, D. C., December 8, 9 and 10, 1885.

(Specially reported for THE JOURNAL.)

(*Continued from page 694.*)

TUESDAY, DECEMBER 8—EVENING SESSION.

THE PRESIDENT called the Association to order at eight o'clock, and introduced Dr. J. M. TONER, Chairman of the Reception Committee, who stated that it was expected that the President of the United States would be with them that evening, but a letter, which he asked the Secretary to read, fully explained the President's absence.

EXECUTIVE MANSION,
WASHINGTON, DECEMBER 7, 1885.

DR. J. M. TONER:

My Dear Sir:—I am sorry that the condition of the public business is such that I cannot accept the invitation which you kindly tendered me in behalf of the American Public Health Association to attend its annual meeting tomorrow evening. I beg to assure you that my expression of regret is not merely formal, but actually indicates a sense of deprivation which attends an inability to give by my presence, as requested, the fullest endorsement of the object and purposes as well as the work of the Association.

Surely "the advancement of sanitary science" and its practical application to the public health are of immense importance to the people of our land. Of course, the value of efforts in the direction of a better understanding of the causes of disease and protection against the same, is too palpable for suggestion or argument. But I do not think the advantages of an improvement in the condition and sanitary surroundings of the homes of our workingmen and of the poor among us is sufficiently appreciated. Healthful and comfortable habitations indicate the best feature of a country's prosperity and advancement; and men with good health and wholesome surroundings are apt to be contented and useful citizens. The difference in the death-rate of cities and localities unexplained by natural and inherent causes, is of itself enough to give great prominence to the work of the Association; and if this beneficent organization shall succeed, as it ought, in impressing upon municipalities the duty of sensible and thorough sewerage; a plentiful and pure supply of water and general cleanliness, together with a proper construction of school buildings for the children of their citizens, it may well point with pride to its achievements. With the hope that the Association may be the means of constantly increasing benefits to the country, and with expressions of heartiest sympathy with its work, I am, Yours sincerely,

GROVER CLEVELAND.

PRESIDENT CLEVELAND ELECTED AN HONORARY MEMBER.

DR. TONER then moved that the President of the United States be elected the first honorary member of the Association, which was adopted unanimously.

DR. TONER then delivered the

ADDRESS OF WELCOME.

He said that, however appreciative he was of the importance of the work in which the Association was engaged, he lacked the ability to fully voice the sincere and hearty sentiments of good-will for the medical profession, and all laborers in the sciences which have for their aims the advancement and good of the human race. All know the beneficent aims of this Association, and the great value of your recommendations to public health authorities, and look hopefully to the benefits which cities, towns, hamlets and rural homes throughout the land may derive from a thorough and impartial consideration by you, to solve the many complex questions of sanitary science. The legislatures of the States and the councils of cities are now willing to be advised by competent sanitarians as to the causes of diseases and the adoption of necessary means for their removal or prevention. A knowledge of the laws of health does not come to a man by intuition, but by education and experience. He then spoke of the International Sanitary Conference held in Washington in 1882, and the appointment of the several commissions to investigate cholera and yellow fever. He then referred to the approaching meeting of the International Medical Congress, to meet in the City of Washington in 1887.

DR. JAMES E. REEVES then delivered

THE PRESIDENT'S ADDRESS.

(See page 645, THE JOURNAL of Dec. 12.)

WEDNESDAY, DECEMBER 9, SECOND DAY.

THE PRESIDENT called the Association to order at 9:30 A.M. The attendance was much larger than the day before, there being 126 who had registered.

The following were

ELECTED MEMBERS:

Drs. G. A. Doren, Columbus, O.; B. C. Brett, Green Bay, Wis.; D. L. Wallace, Newark, N. J.; F. Edmister, Brooklyn; L. Slusser, Canton, O.; Robert Martin, Milwaukee; F. Montezambert, Quebec; George Cook, Concord, N. H.; A. J. Wolff, Hartford; W. G. Alling and L. J. Sanford, New Haven; D. R. Hagan, Chas. McMillan, J. O. Stanton, Wm. M. Gray and T. E. Hammond, Washington, D. C.; W. E. Taylor, Monmouth, Ill.; MM. George W. Baird, U. S. Navy; M. H. Stauffer, Allegheny, Pa.

The following were

ELECTED ASSOCIATE MEMBERS:

Drs. Llewellyn Eliot and E. P. Bliss, and MM. John Frazer, Edward Coverly, and F. B. Sands, of Washington, D. C.

The Executive Committee also reported that it

had not deemed it expedient to adopt the resolution offered on the previous day, by Dr. R. Harvey Reed, in the matter of securing legislation for the prevention of the sale of diseased meats.

The Secretary reported that the Cosmos Club, of Washington, had extended a cordial invation to the members of the Association, to call upon them at any time during their stay in Washington.

Dr. P. H. Bryce, of Toronto, Canada, read an exhaustive paper on

SMALL-POX IN CANADA, AND THE METHODS OF DEALING WITH IT.

After stating that he felt like a lawyer before a criminal court, pleading for a criminal who has boldly declared himself "not guilty" of an epidemic of small-pox, the speaker proceeded to relate the circumstances of the outbreak of the present year, stating that it was not until a prominent politician had died from the disease that the entire outside world and Montreal herself awoke to the situation. The number of deaths was about 3,000, or about one to every infected house. Unfortunately the epidemic was not confined to Montreal alone. Among the French the system of sanitation was unable to grapple with the disease. Knowing this, the health authorities of Montreal provided the local boards of health with instructions and did everything in their power to warn them of their danger. The speaker described in detail the special regulations which were drawn up by the Ontario authorities and the means taken to prevent the spreading of the epidemic. All goods, merchandise and people passing in or out of the province were strictly examined. The railways lent ready aid in the cause of inspection, and every car was examined and all the railway officials vaccinated. Merchandise certificates were issued and the merchants availed themselves gladly of this system, which prevented the cancelling of a large number of their orders. Passengers were asked if they came from Montreal, what street and number, and if it was found that they came from near an infected house, their baggage was taken and fumigated, and themselves quarantined for a time. In the Province of Quebec equal precautions were taken to prevent the spreading of the epidemic. In conclusion the speaker said he thought it very creditable to Ontario that it had succeeded in establishing an internal quarantine through which no case of disease had passed to the neighboring States. He thought that the common sense of justice of the association would lead it to agree with him that the unreasonable continuance of the quarantine at the Suspension Bridge should be removed.

Dr. Wm. H. Hingston, of Montreal, said: My city has been afflicted as no other city on this side of the Atlantic has ever been afflicted. But I must say that no city could have made more tremendous efforts to free itself of its affliction. It has been mainly through the aid of the United States authorities that the rules for vaccination were enforced more thoroughly than could otherwise have been possible, and he took the occasion to thank the Union for its assistance. Montreal had to create legislation for itself on account of its distance from the seat of government, but these rules were sent by special messenger to Quebec and within forty-eight hours they were law. No province could have done more to rid itself of its epidemic than had Quebec. There were no small-pox hospitals or isolated buildings in which patients could be placed, until the outbreak of the disease. Disinfection according to the most modern methods was employed. The speaker then described the opposition which the health authorities had met with in their efforts for inspection and disinfection.

The deaths from small-pox in Montreal, he said in conclusion, numbered, as has been stated, 3,000. But by the death of 3,000 children it must not be supposed that it means 3,000 houses in mourning. In some of the States, I believe, there is one child to two or three houses, and in such places this number of deaths would affect about 6,000 homes. Now, our birth rate, I am happy to say, is enormous. No country in the world can exceed it. So if you will divide the 3,000 deaths by 5 or 6, you will probably get the number of houses to-day in mourning in Montreal.

Dr. James M. Watson, of New Jersey, moved that hereafter, members engaging in discussion of a paper be restricted to five minutes. Adopted.

Dr. Wm. M. Swift, Quarantine Officer of New York, spoke in detail of the manner in which inspection of Emigrants is carried on at the port of New York City.

Dr. A. N. Bell, of New York, denounced the authorities in Montreal for not having the people vaccinated at the outbreak of small pox in that city, and for delaying this important step so long. He considered it a crime for a community to have small-pox. The gentleman preceding him spoke of the hardships of quarantining their people; they deserved it. This epidemic did not come because Montreal is a filthy city, but on account of the bad system of vaccination in use there.

Dr. Bushrod W. James, of Philadelphia, favored compulsory vaccination for the whole country, quarantining people having small-pox, and putting them into the small-pox hospital.

Dr. James A. Stewart, Commissioner of Health of Baltimore, called attention to the dangers resulting from public funerals of persons dying from epidemic diseases.

Dr. W. K. Newell, of Jersey City, thought persons ought to be vaccinated two or three times if necessary, or until the last operation produces no result. He had adopted a system of vaccinating twice on each arm. Care was necessary as to what vaccine was employed.

Dr. C. W. Chancellor, of Maryland, read a paper on

IMPURE AIR AND UNHEALTHY OCCUPATIONS AS PREDISPOSING CAUSES OF PHTHISIS

He stated that in England one-fifth of all the deaths occurring are from pulmonary consumption; in France, one-sixth, and in Germany and Austria about one-seventh. In the census year of 1880 one-eighth of the deaths occurring in this country were from consumption. The causes which lead to this

fearful mortality demand more than ordinary consideration.

It cannot be denied that some occupations are more unhealthy than others. There can be no doubt that the inhabitants of cities are less hardy and more subject to pulmonary disease than those of the country. City people, speaking generally, are pale, of lymphatic temperaments, and their muscular system is but poorly developed. Want of a free circulation of a pure, uncontaminated atmosphere is the most powerful cause of this. In addition to this, in cities the passions are more excitable; indulgence in eating and drinking is more common; with many life is sedentary, and the occupations are altogether more unhealthy than those in the country. Take, for example, those engaged in mercantile life—merchants and clerks. These, for sanitary purposes, may be divided into three classes—first, those who have but little exercise, such as book-keepers; second, those who have exercise but are confined to their stores in a superheated, unhealthy atmosphere, as, for example, salesmen; and third, those who have exercise in the open air, or who do out-door work. In the first class the digestive organs suffer; the next from diseases of the pulmonary organs, and the third from the prostrating effects induced by over-mental or bodily exertion or by corroding care.

Salesmen are liable to their diseases because they are constantly exposed to their exciting causes, the principle of which are an impure atmosphere and exposure to sudden changes of temperature.

Referring to artisans and laborers who work in manufactories and shops, many of which are badly located, badly ventilated and often abounding in unhealthy dust, under such circumstances, said the speaker, the most substantial nourishment, the most temperate habits, cannot prevent their becoming blanched and weakened by disease. Persons habitually breathing a dust-laden atmosphere, as in some manufactories, are more especially liable to pulmonary complaints.

The problem of how to face this evil is simply, How to environ each worker in the prosecution of his work with a pure atmosphere? The solution of the problem could be easily suggested by the sanitary engineer, but its execution is a matter for the Legislatures of the several States. In the meantime it is extremely desirable and even necessary that consumptive hospitals should be established in every city. London has its half-dozen and other European cities are not without some provision, but in this country, even in many of the larger cities there is no provision made for so necessary an object. It would be a great and truly useful work to devote an edifice in every large city to so benevolent a purpose.

DR. I. N. QUIMBY thought that some distinction should be made between consumption acquired by occupation and the hereditary form of the disease. He thought that about 75 per cent. was acquired, and about 25 per cent. hereditary.

DR. BUSHROD W. JONES, of Philadelphia, spoke of an inflammatory condition that may arise and is caused by the presence of fine particles of dust. This should be regarded as a traumatic cause, irritating the mucous membrane, and a distinction should be made between this and the combined causes as impure air, poor food, badly ventilated rooms, etc.

It was then decided to make the report of the Committee on Disinfectants the special order for Thursday morning.

COMMISSIONS ON WORKSHOPS.

DR. HENRY LOMB, of Rochester, offered a resolution recommending that the Government appoint two commissions of three members each, who should visit different parts of the country and examine workshops, etc., with the view of ascertaining what arrangements are made for the health of the operatives, and to recommend remedial measures.

(*To be continued.*)

DOMESTIC CORRESPONDENCE

CONJUNCTIVITIS DEPENDENT UPON DISEASE OF THE INTRA-NASAL TISSUES.

TO THE EDITOR OF THE JOURNAL:

Dear Sir.—In connection with the references to the above subject in THE JOURNAL for Nov. 14, p. 538, and Dec. 12, p. 672, permit me to call attention, without comment, to the following passage taken from a paper read by your correspondent April 28, 1883, before the Medico-Chirurgical Faculty of Maryland (*vide* Trans., p. 274): "The inflammation of the conjunctivæ which is so often observed in connection with nasal catarrh is generally explained by the extension of the inflammation process through the nasal duct; but I am inclined to regard it in the majority of instances, as a reflex vaso-motor phenomenon, the vessel dilatation being kept up by the constant irritation of the sensitive nasal area. In like manner I would explain the recurrent herpes and keratis which have been observed in connection with this disease, the phenomena in these cases being called forth by trophic disturbances." The subject is also alluded to by Hack, of Freiburg (Ueber eine operative Radical-behandlung bestimmter Formen von Migraine, etc., Wiesbaden, 1884), and is now familiar to most specialists in throat affections.

In regard to the reflex dependence of aural phenomena upon disease of the turbinated nasal structures, your correspondent would also like to direct attention to a few sentences from former publications of his own which antedate the recent discussions of this subject in the medical journals: "There is still another way, however, in which morbid conditions of the nose may react upon the circulation and upon the nutrition of the aural chambers, viz: through the reflex agency of the vaso-motor and trophic nerves. I am led to the assumption of reflex irritation by the pain and congestion in the ear which occasionally follow the manipulation of instruments within the nasal cavities, or the application of caustics or other remedies to their lining membrane, and furthermore, by the existence of symptoms referable to the ear (tinnitus, pain, etc.), which cannot be explained on any other hypothesis."—*Trans. Med.-Chir. Faculty, Maryland, 1883*, p. 275.

"My experience is, that long-standing occlusion of the nostril from deflected septum is always associated with hypertrophic catarrhal conditions of the turbinated bodies and the mucous covering of the septum behind the deflected portion. This becomes the starting point of inflammatory disease of the lower air-passages and middle ear. Inflammation of the former occurs either as the result of mouth breathing and direct extension, or, as I have pointed out elsewhere (*Am. Jour. Med. Sc.*, July, 1883), may be the outcome of the constant hyperæmia induced by reflex nasal irritation, the vessel dilatation being kept up by the prolonged stimulation of the reflex centres from chronic nasal inflammation. In the same way, I believe that reflected irritation from the turbinated tissues of the nose may react upon the circulation and nutrition of the aural chambers. I have recently called attention (*Trans. M.-C. Fac., Md.*, and *Trans. Am. Laryngol. Assoc.*, 1883) to this reflex agency of the vaso-motor and trophic nerves in the production of middle ear disease, to the recognition of which I was led by the accidental production of symptoms referable to the ear (such as tinnitus, pain, stoppage, etc.) during operation procedures in the nose. Although my experiments upon this point have as yet taken no definite form, it is quite possible that the aural affection in these cases may find its explanation in pathological conditions of the reflex sensitive area which I have shown to exist in the nasal mucous membrane (*Am. Jour. Med. Sc.*, l. c.). At least, in several cases I have succeeded in reproducing them by artificial stimulation of this area. This is a fact of considerable practical importance in the solution af many obscure and intractable cases of middle ear disease whose etiology has been heretofore unrecognized."—*Trans. Va. State Med. Soc.*, p. 121.

JOHN N. MACKENZIE, M.D.

Baltimore, Dec. 18, 1885.

BOOK REVIEWS.

PRACTICAL HISTOLOGY AND PATHOLOGY. By HENEAGE GIBBS, M.D., Lecturer on Normal and Morbid Histology in the Medical School of the Westminster Hospital. Third Edition. 8mo, pp. 200. Philadelphia: P. Blakiston, Son & Co. 1885. Chicago: W. T. Keener.

The scope of the work can be seen readily from the following headings of chapters: "Microscope;" "On Preparing Tissues for Examination;" "On Section Cutting;" "On Staining;" "On Double Staining;" "On Mounting;" "On Injecting the Vascular System;" "Method of Obtaining Animal Tissues for Examination;" "On Preparing and Mounting Pathological Specimens;" "On Bacteria;" "On Staining Bacteria." The first chapters deal with microscopical technique and are very good, though we cannot commend them as highly as the little book of Friedlander, which was noticed in these pages a few weeks ago. More formulæ for staining fluids are given in this than in the latter work, but the directions for manipulating specimens are not so detailed and explicit. The chapter pertaining to pathological tissues is short and least satisfactory. The chapter on the staining of bacteria is devoted almost exclusively to the staining of tubercle bacilli.

THE SCIENCE AND ART OF MIDWIFERY. By WILLIAM THOMPSON LUSK, A.M., M.D., Professor of Obstetrics and Diseases of Women and Children in the Bellevue Hospital Medical College; Consulting Physician to the Maternity Hospital, etc., etc. New Edition, revised and enlarged, with numerous illustrations. 8vo, pp. xviii, 763. New York: D. Appleton & Co., 1885. Chicago: Jansen, McClurg & Co.

It is now just four years since the first edition of this work was given to the public; and the favorable reception of that and the second edition rather preclude the necessity of an extended notice of this, the third edition. Many changes in the text have been made in the present edition, and in some cases entire subjects have been rewritten; changes that have been rendered necessary by the great strides that have been made in scientific midwifery during the past three or four years. The facts that the book has been so favorably received in this country and abroad, and that it has been translated into Spanish, French and Italian are sufficient to show that it has most unusual merits.

ASSOCIATION ITEMS.

REPORT OF THE LIBRARIAN.

I have the honor to present the accompanying catalogue of additions made to the Library of the Association by donations, exchanges, purchase and subscription, during the past year. The Catalogue submitted herewith shows that since last report, 183 distinct titles have been added, including 56 volumes of Transactions, Hospital Reports, Reports of Boards of Health, and Medical Journals not previously received and catalogued. Also, that there has been an addition to the library of a number of valuable works by standard American authors, sent for review to the Editor of THE JOURNAL, and by him transmitted to the Library, which, with this increase, now contains 2,249 distinct titles, and comprehends about 6,500 volumes, including pamphlets.

I would again draw the attention of the Association to the fact, that the present quarters of the Library are inadequate, and hope that some means may be found to make this valuable collection more accessible to the profession. I recommend, as on former occasions, that the system of exchanges be continued and wherever possible, increased. Also, that $200 be placed at the disposal of the Librarian, to be expended in binding periodicals, transactions, etc., and in the purchase of such journals, etc., as are needed to complete sets already on our shelves.

My thanks are again due, and hereby expressed to the Editor of THE JOURNAL OF THE ASSOCIATION for his active coöperation, by prompt transmission to me

of books, pamphlets, journals, etc., sent to him for review or as exchanges.

Respectfully submitted.

C. H. A. KLEINSCHMIDT, M. D.,
Librarian.

3113 W St., Washington, D.C., April 28, 1885.

ADDITIONS BY DONATIONS, EXCHANGES, PURCHASE, AND SUBSCRIPTION, TO THE LIBRARY OF THE AMERICAN MEDICAL ASSOCIATION, FROM MAY 1 1884, TO APRIL 15, 1885:

Adams, S. S., Incontinence of Urine in Children; Sudden Death in Diphtheria; Strabismus Convergens. Reprints. Donor, Author.

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Dawbarn, R. H. M., Aid to Materia Medica.

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Wright, J. W.—Lecture on Diseases of the Rectum.

Wooldridge, L. C.—Ueber einen neuen Stoff des Blutplasmas: Physiologischen Institut zu Leipzig. Donor, Author.

Wyman, Hal. C.—A Useful Catheter for the Operation for Vesico-vaginal Fistula. The Management of Pott's Disease of the Spine in Young Children.

Ziegzer, G. J.—The Basic Pathology and Specific Treatment of Diphtheria, Typhoid, etc.

[The list of foreign and domestic exchanges, college announcements, etc., is omitted for want of space.]

MISCELLANEOUS.

IMPORTANT LEGAL DECISION.—In the case of Boor *vs.* Lowry, the Supreme Court of Indiana, on Nov. 4, 1885, decided that an action for damages for injury to the person caused by malpractice of the physician, does not survive the death of a physician and cannot be maintained thereafter, no matter in what form it may be brought. Elliott & Zollars, J. J., dissenting.

DR. JOHN C. DRAPER, Professor of Chemistry in the Medical Department of the University of the City of New York, died of pneumonia, at his home in that city on December 20, after a short illness, in his fifty-first year.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE WEEK ENDED DECEMBER 12, 1885.

Yemans, H. W., Passed Asst. Surgeon, granted leave of absence for fifteen days. Dec. 7, 1885.

Bratton, W. D., Asst. Surgeon, when relieved to proceed to San Francisco, Cal. Dec. 12, 1885.

Norman, Seaton, Asst. Surgeon, appointed an Asst. Surgeon, Dec. 11, 1885. Assigned to duty at New York, N. Y. Dec. 12, 1885.

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